Phased Emission Control Process for Production Storage Vessels

API requests that EPA allow 90 days after the first date of production to:

- Determine the production rate, composition, and pressure for determining the emissions based on the first 30 days production times a decline factor,
- Calculate the emissions, and
- Install the controls for storage vessels in areas where the emissions could be close to the threshold EPA sets for requiring controls.

Emissions from a storage vessel used in the oil and gas production sector cannot be **precisely** quantified until the production rate, pressure, and composition of the condensate or crude oil from a well are known after the first date of production. Emissions are estimated using information from the surrounding wells in the reservoir prior to the first date of production. However, because of the natural variations in any given well, the exact characteristics could be different resulting in the emissions estimate being incorrect. For areas where the emissions could be close to the threshold that EPA sets for requiring controls, this would cause many tanks to have controls installed that are not cost effective to avoid the possibility of being placed in retroactive non-compliance.

In our comments under section 16.8, API defined first date of production based on WYDEQ's permitting guidance[1] as "that date permanent equipment is in place and product is **consistently** flowing to the sales line, gathering line, or storage tank." API recommended that, like in WYDEQ's permit guidance, EPA allow companies to use the first 30 days production multiplied by a decline factor and the average of the first 30 days pressure of the separator prior to the tank to calculate emissions using E&P Tanks, an appropriate flashing model, or interpolating from Table 16-6 in the comments (provided below) to determine if the emissions were greater than the emissions threshold. EPA could ask EIA to help determine a US average decline factor similar to what WYDEQ developed which is discussed on page 40 of the WYDEQ Permitting Guidance. If emissions were greater than the threshold, a control must be installed within 90 days of the first date of production without the tank being out of compliance.

Table 16-6 Throughput Exemption Thresholds vs. Separator Pressure
(corresponding to 12 tpy VOC emissions per tank)

Separator Pressure (psig)	Crude Oil Throughput Threshold (bbl/day)	Condensate Throughput Threshold (bbl/day)
10	330	330
20	130	130
30	73	66
40	50	41
50	39	30
60	31	22
80	23	14
100	19	10.0
120	16	8.0
140	15	6.6
160	14	5.7
180	13	5.0

[1] Wyoming Department of Environmental Quality, Oil and Gas Production Facilities Chapter 6, Section 2 Permitting Guidance, Revised March 2010, http://deq.state.wy.us/aqd/Oil%20and%20Gas/March%202010%20FINAL%20O&G%20GUIDANCE.pdf

Separator Pressure (psig)	Crude Oil Throughput Threshold (bbl/day)	Condensate Throughput Threshold (bbl/day)
200	12	4.5
240	11	3.8
260	10	3.6
300	10	3.2
350	9.0	2.8
400	8.7	2.5
450	8.3	2.3
500	8.0	2.1

Production tanks are unlike most other NSPS sources in that the characteristics for determining emission rates (e.g., production rate and separator pressure) are not known with certainty while in the design phase for an installation. The data variables required to calculate emissions cannot be measured until the first date of production and changes throughout the life of the well. A landfill which is regulated under NSPS Subpart WWW is, in many respects, similar to oil and gas production wells in its natural variability and thus presents a good template for NSPS OOOO tank regulation.

Under NSPS WWW (40 CFR 60.752(b)) for Municipal Landfills, EPA allowed the landfill owner to estimate the emissions prior to operation. If the emissions estimate is greater than the threshold, the operator can either install a collection and control or can wait and calculate the NMOC emission annually after the landfill is operational to see if it is over the threshold. If the annual NMOC emissions are greater than the threshold, then the owner is to submit a collection and control plan within 1 year and install the collection and control system within 30 months thus avoiding retroactive noncompliance.

EPA adopted the "estimate, monitor, plan and then control" rationale in NSPS WWW and also faces the same problem for storage vessels in the proposed NSPS OOOO. Requiring emissions controls when they are not cost effective undermines the cost effectiveness of the entire rule, so that some kind of estimate and verification step is part of the BSER analysis. As discussed in Section 16.6.8, controls are not cost effective until VOC emissions exceed 12 TPY. This point is discussed in the Subpart WWW rule docket in detail, of which this is one example:

> "Landfill emissions vary substantially over time. Designing collection and control systems requires considerable resources, and design plans should not be required unless it is evident that control will actually be required. Waste acceptance rates, landfill practices, and local regulations change frequently enough that a design plan that seems appropriate today for a need anticipated in the future may actually be infeasible when the time comes to install. In some cases, waste acceptance rates may even decrease resulting in lower emissions than predicted. For example, rates might decrease if a given community were to prohibit the acceptance of yard waste. Some landfills may close down before the anticipated emission rate is reached. The EPA is not prepared to require landfill owners and operators to expend resources developing a collection and control plan before it is reasonably certain that the system will, in fact, be required." (Air Emissions From Municipal Solid Waste Landfills - Background Information For Final Standards And Guidelines (Background Document) Page 2-168 (available at http://www.epa.gov/ttn/atw/landfill/landflpg.html))

EPA pointed out that the process of estimation, monitoring and planning is part of the standard of performance, and that this type of NSPS approach complies with CAA Section 111:

> "**Comment:** Two commenters (IV-D-18, IV-D-45) proposed that landfills close to exceeding the regulatory emission rate cutoff should not be allowed to accept additional waste until the collection and control system has been approved (IV-D-18) or installed (IV-D-45).

> **Response**: The EPA views the regulatory emission rate cutoff as a threshold initiating the process of system design and installation, rather than a limit above which an unacceptable risk exists. This is why a landfill is considered to be "controlled" once a design plan has been submitted. The EPA recognizes that the process of system design and installation takes time, but does not agree that prohibiting waste acceptance until system approval and installation is warranted, as long as the owner or operator is proceeding through the process." (Background Document 2-159)

Without time to obtain information about a well's physical characteristics so that emissions can be estimated more precisely, every tank would need a control upon startup to avoid potential non-compliance; particularly those for which the pre-production information suggests may be nearing the threshold. Furthermore, without time to determine the emissions and every tank needing a control, the ability to remove controls once emissions declines **below 6 TPY** becomes more critical. API's comments in Section 16.8 provide example regulatory text of how this could be achieved.

Subpart WWW also addressed control removal, and justified it on the basis of making the rule cost effective:

> "3.2.2 Control Periods for Affected Landfills - Landfills will be required to operate emissions controls as long as their emissions exceed the selected cutoff level. Individual affected landfills will reach the selected emissions cutoff level in different years, depending on waste deposited. Similarly, the number of years that emissions will exceed the cutoff level will vary from landfill to landfill; therefore, the year that controls may be removed will also vary. The longer emissions must be controlled, the greater the compliance costs and the greater the economic impacts of the regulation (see Figure 3-1)." (Background Document, 3-14)

This is exactly the same situation in the Oil and Gas industry. As pressure and production rate decline, the emissions from the tank will also decline. The result is that use of the NSPS OOOO proposed control device becomes less and less cost-effective over time. This will also allow an operator to move combustors and other control devices to other locations, improving the overall availability and cost-effectiveness of controls.